

# WATER QUALITY REPORT 2011

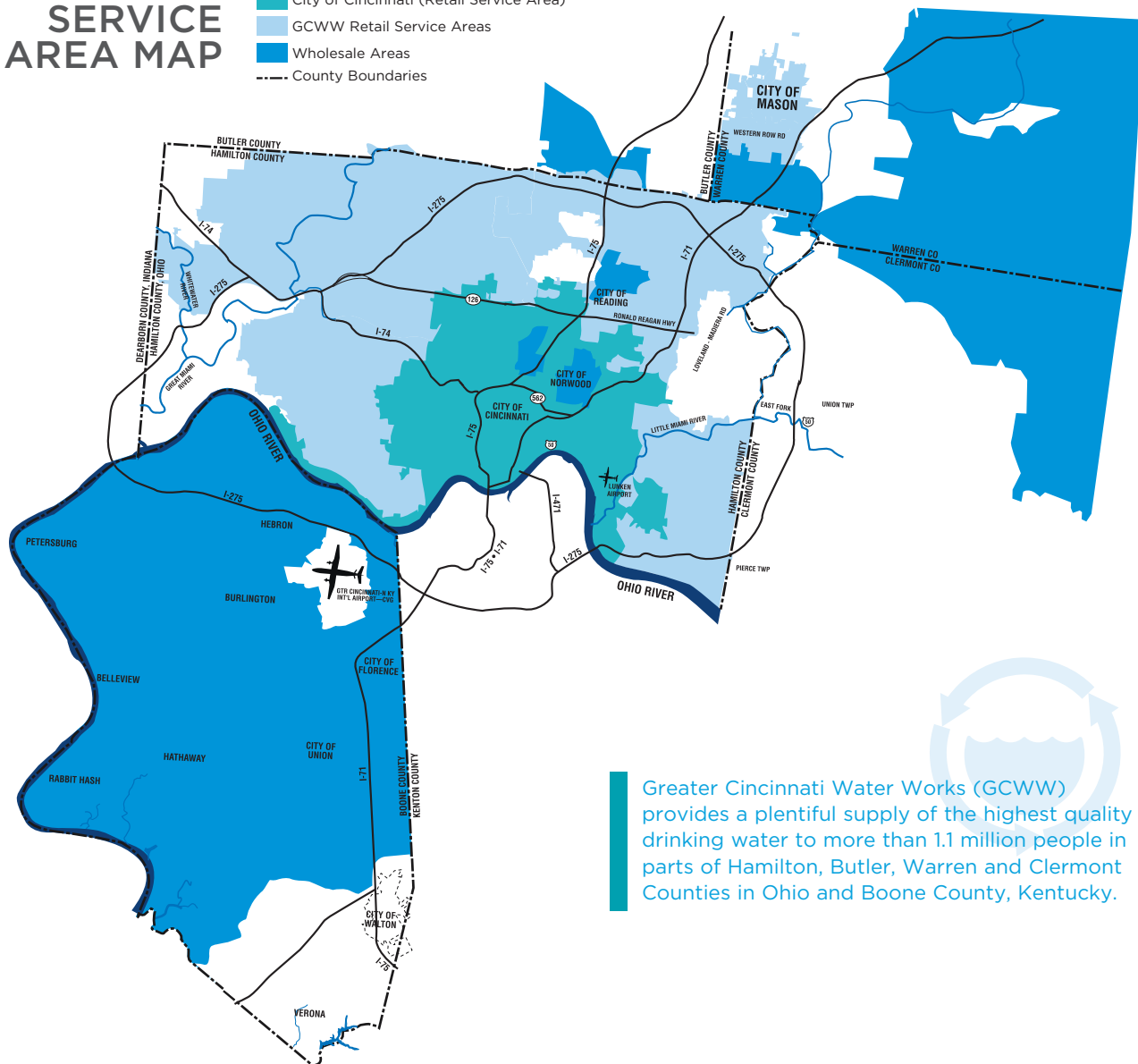
Great measures that provide you and  
your family the highest quality water.



GREATER CINCINNATI  
**WATER WORKS**

*A Service of The City of Cincinnati*

- City of Cincinnati (Retail Service Area)
- GCWW Retail Service Areas
- Wholesale Areas
- County Boundaries



Greater Cincinnati Water Works (GCWW) provides a plentiful supply of the highest quality drinking water to more than 1.1 million people in parts of Hamilton, Butler, Warren and Clermont Counties in Ohio and Boone County, Kentucky.

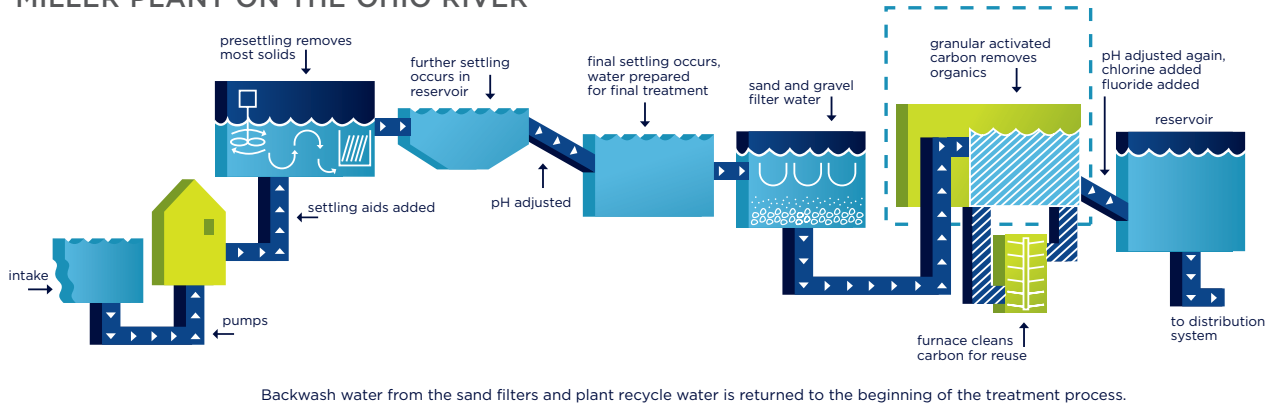
GCWW supplies water from two sources: the Ohio River and the Great Miami Aquifer. Surface water from the Ohio River is treated at the Miller Treatment Plant. This plant, located on the east side of Hamilton County, supplies about 88% of drinking water to GCWW's customers.

The Bolton Treatment Plant treats ground water from twelve wells in the Great Miami Aquifer. It is located in the southern part of Butler County and supplies about 12% of drinking water to GCWW customers.

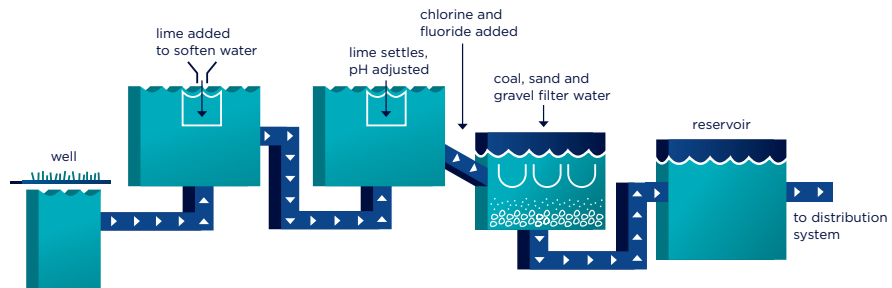
# Our state-of-the-art treatment processes

Before the water comes to your tap, GCWW takes many steps to ensure its quality and safety. Our priority is safe drinking water. On average, we perform 600 tests a day throughout the treatment process and distribution system to ensure you receive the highest quality water possible.

## THE TREATMENT PROCESS AT THE MILLER PLANT ON THE OHIO RIVER



## THE TREATMENT PROCESS AT THE BOLTON PLANT ON THE GREAT MIAMI AQUIFER



# A leader in water quality technology

## GRANULAR ACTIVATED CARBON

GCWW's Miller Treatment Plant is one of only a few water treatment plants in the nation that incorporates granular activated carbon (GAC) with on-site reactivation into its water treatment process. This state-of-the-art technology uses granular carbon which contains numerous microscopic cavities. When water is passed through the GAC, impurities adhere to the carbon and are removed from the water. Benefits of GAC are: barrier against potential chemical spills in the Ohio River; barrier against impurities in raw source water; less chlorine required for disinfection; reduced disinfection-by-products; and improved control of taste and odor.

## UV, A BRIGHT LIGHT IN OUR FUTURE

Greater Cincinnati Water Works is constructing an ultraviolet (UV) disinfection treatment facility at the Miller Plant. UV disinfection uses UV light, in low doses, to inactivate disease-causing organisms such as *Cryptosporidium*. Once completed, GCWW will be the largest water utility in North America to use UV disinfection following sand filtration and GAC adsorption to protect public health.

GCWW typically treats 133 million gallons of water a day.

## Source water protection

The sources of drinking water — both tap and bottled water — include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. As a result, the Ohio Environmental Protection Agency has classified all surface waters as highly susceptible to potential contamination. The Bolton Well Field, a ground water source, is also highly susceptible to contamination because the well field doesn't have a protective clay layer, ground water has low levels of nitrate and there are potential contaminant sources nearby. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife;
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming;
- Pesticides and herbicides, which may come from a variety of sources such as agricultural, urban stormwater runoff and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

For more information about source water protection or to find out what you can do to help, call (513) 591-7700 or email [info@gcww.cincinnati-oh.gov](mailto:info@gcww.cincinnati-oh.gov).

To reduce the potential of contamination in its source water, GCWW has helped establish two environmental protection programs:

### **ORSANCO, EARLY WARNING DETECTION SYSTEM — OHIO RIVER (Ohio River Valley Water Sanitation Commission)**

Thirteen monitoring stations, strategically placed along the Ohio River, detect and warn treatment plants downstream about spills so they can take precautionary measures before the spill reaches their intake. Established in 1978, this coordinated early warning system was the first of its kind in the country. For more information, visit [www.orsanco.org](http://www.orsanco.org).

### **HAMILTON TO NEW BALTIMORE GROUNDWATER CONSORTIUM — GREAT MIAMI AQUIFER**

This group, comprised of seven public and industrial ground water producers/suppliers in southwest Ohio, maintains a network of early warning monitoring stations, works with facilities that store hazardous substances to minimize the risk of spills, and educates the public on what they can do to protect ground water. For more information, visit [www.gwconsortium.org](http://www.gwconsortium.org).



# GCWW met or exceeded all state and federal health standards

GCWW is proud to say that our water meets or exceeds every health standard developed by both the USEPA and Ohio EPA. In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount

of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which shall provide the same protection for public health.

The tables below show the substances detected in GCWW drinking water while performing the most up-to-date monitoring required by the EPA. The Ohio EPA requires us to monitor for some contaminants less than once per year because the

concentrations of these contaminants do not change frequently. Because of this, some of our data, though accurate, is more than one year old. For a complete listing of GCWW test results, call (513) 591-7700 and press “0”.

### REGULATED CONTAMINANTS

Substances subject to a Maximum Contaminant Level (MCL), Action Level (AL) or Treatment Technique (TT)\*. These standards protect drinking water by limiting the amount of certain substances that can adversely affect public health and are known or anticipated to occur in public water systems.

2011 Report			Miller Water (from the Ohio River)				Bolton Water (from the Great Miami Aquifer)				Typical Source of Contamination (for more details, visit <a href="http://www.epa.gov/safewater/hfacts.html">www.epa.gov/safewater/hfacts.html</a> )
Substance (Unit)	Maximum Allowed (MCL*)	MCLG*	Highest Compliance Level Detected	Range of Detections	Violation	Year Sampled	Highest Compliance Level Detected	Range of Detections	Violation	Year Sampled	
Fluoride (ppm)	4	4	0.93	0.77 - 1.04	No	2011	0.92	0.77 - 1.02	No	2011	Additive which promotes strong teeth. May come from erosion of natural deposits.
Nitrate (ppm)	10	10	1.06	0.62 - 1.06	No	2011	1.86	na	No	2011	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.
TTHMs (ppb) [Trihalomethanes]	80	na	46.6	17.9 - 76.5	No	2011	33.7	17.5 - 47.5	No	2011	Byproduct of drinking water chlorination.
HAA5 (ppb) [Haloacetic Acids]	60	na	11.8	3.42 - 20.6	No	2011	8.28	1.57 - 12.0	No	2011	Byproduct of drinking water chlorination.
Turbidity (NTU)	TT1 < 1 NTU Max <i>and</i> TT2 < 0.3 NTU 95% of the time	na na	0.13 100%<0.3 NTU	0.05 - 0.13	No	2011	nr	nr	na	na	Soil runoff.
Lead <sup>2</sup> (ppb)	AL = 15	0	90th percentile 4.4	na	No	2011	90th percentile 4.4	na	No	2011	May come from erosion of natural deposits. There is no detectable lead in our water as it leaves the treatment plants. However, corrosion of household plumbing is a source of lead and copper contamination. GCWW tests water samples collected at customer taps, as required by the Safe Drinking Water Act to ensure safe water.
			(2 out of 105 samples tested were > the AL)				(2 out of 105 samples tested were > the AL)				
Copper <sup>2</sup> (ppm)	AL = 1.3	1.3	90th percentile 0.0263	na	No	2011	90th percentile 0.0263	na	No	2011	
			(0 out of 105 samples tested were > the AL)				(0 out of 105 samples tested were > the AL)				
Total Organic Carbon	TT <sup>1</sup>	na	1.95	1.41 - 3.23	No	2011	nr	nr	na	na	Naturally present in the environment.
Total Chlorine <sup>2</sup> (ppm)	MRDL=4	MRDLG=4	1.05	0.89 - 1.15	No	2011	1.05	0.89 - 1.15	No	2011	Water additive used to control microbes.
Barium (ppm)	2	2	0.052	na	No	2011	0.021	na	No	2011	Erosion of natural deposits; Discharge of drilling wastes; Discharge from metal refineries.

### UNREGULATED CONTAMINANTS

Substances for which EPA requires monitoring to determine where certain substances occur and whether it needs to regulate those substances.

2011 Report		Miller Water				Bolton Water				Typical Source of Contamination
Substance (Unit)	MCLG*	Avg. Level Detected	Range of Detections	Violation	Year Sampled	Avg. Level Detected	Range of Detections	Violation	Year Sampled	
Chloroform (ppb)	70	1.99	na	na	2011	1.26	na	na	2009	Byproducts of drinking water disinfection, measured at the point of entry to distribution system.
Bromodichloromethane (ppb)	0	4.21	na	na	2011	3.35	na	na	2009	
Dibromochloromethane (ppb)	60	5.80	na	na	2011	7.68	na	na	2009	
Bromoform (ppb)	0	1.84	na	na	2011	8.43	na	na	2009	
Sulfate (ppm)	na	63	46 - 81	na	2011	na	na	na	na	Erosion of natural deposits.

#### Foot Notes

**1** The value reported under “Highest Compliance Level Detected” for Total Organic Carbon (TOC) is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements. **2** Miller and Bolton were considered as one distribution system for regulatory purposes by Ohio EPA during 2011. Data listed for each system represents the combined distribution system.

#### Abbreviations

**ppb:** parts per billion or micrograms per liter **ppm:** parts per million or milligrams per liter **nr:** not regulated **na:** not applicable **NTU:** Nephelometric Turbidity Unit, used to measure clarity in drinking water **nd:** not detectable at testing limits **pCi/l:** picoCuries per liter, a measure of radioactivity in water **TTHMs:** Total Trihalomethane **HAA5:** Haloacetic Acids

#### \*Definitions

**Maximum Contaminant Level Goal or MCLG:** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level or MCL:** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Action Level or AL:** The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system shall follow.

**Treatment Technique or TT:** A required process intended to reduce the level of a contaminant in drinking water.

**Maximum Residual Disinfection Level or MRDL:** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfection Level Goal or MRDLG:** The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Turbidity:** Utilities who treat surface water are required to report on turbidity as an indication of the effectiveness of the filtration system. Turbidity is a measure of the cloudiness of water. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported in the table, GCWW's highest recorded turbidity result for 2011 was 0.13 NTU (Miller Water) and lowest monthly percentage of samples meeting the turbidity limits was 100%.

**The < symbol:** A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.

## Why tap water delivers.

GCWW has a terrific responsibility in providing water to the families in our community. It's one we do not take lightly. We know our water must be safe, affordable and there when you need it.

So we go to great lengths to deliver you the highest quality water possible. In addition to the data in this report, here are some additional stats that show how we stack up:

- Our tap water is constantly checked for biological and chemical contaminants while bottled water is not.
- Most brands of bottled water are essentially bottled tap water. In the U.S., bottled water costs between \$0.25 and \$2 per bottle, while tap water costs less than \$0.01.\*
- Drinking tap water will reduce the almost 1.5 million tons of plastic waste created each year by bottled water
- Drinking tap water also eliminates greenhouse gas emissions, air pollution, and fossil fuel consumption required for the transportation of bottled water.

In addition to all the processes documented in this report, GCWW has been actively involved in national and international research efforts to develop new ways to treat and test our water. We're fully committed to ensuring the highest quality water for you and your community.

*\*Sources: Wikipedia, Mother Nature Network, and U.S. FDA*



## FREQUENTLY ASKED QUESTIONS



### IF THERE ARE REPORTED CONTAMINANTS, HOW CAN MY WATER BE SAFE?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. However, some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. More information about contaminants and potential health effects can be obtained by calling the Federal Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at (800) 426-4791.

### WHAT IS CRYPTOSPORIDIUM?

Cryptosporidium (Crypto) is a microscopic organism, that when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. Crypto is found in surface waters and comes from animal and human waste. GCWW routinely tests for Crypto and did not detect it in either our source or finished water in 2011. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

### IS THERE LEAD IN MY WATER?

There is no detectable lead in our drinking water as it leaves our treatment plants. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. GCWW is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 3 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. A list of laboratories certified in the State of Ohio to test for lead may be found at <http://www.epa.ohio.gov/ddagw> or by calling 614-644-2752. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### SOMETIMES MY WATER IS REDDISH-BROWN. IS THIS SAFE?

The reddish-brown color can be caused by rust from corrosion in GCWW's pipes, the pipes in your home, or from corrosion in your home's water heater. This is not a health concern; the water meets or exceeds all health-based regulations. If you have rusty water, try running cold water for several minutes. If you have questions, or your laundry is stained from rusty water, call GCWW at 513-591-7700. We will deliver laundry aid to remove the rust. Do NOT put stained laundry in the dryer.

### WHY DOES DRINKING WATER SOMETIMES LOOK CLOUDY?

Cloudy water that clears quickly from the bottom up is caused by tiny air bubbles in the water similar to gas bubbles in soda. After a while, the bubbles rise to the top and disappear. This cloudiness occurs more often in the winter when drinking water is cold. Air does not affect the safety of water.

### WHY IS FLUORIDE ADDED TO MY WATER?

Fluoride is added to the water to protect teeth as required by state law passed in 1969. According to the American Dental Association, persons who drink fluoridated water have a 20% to 40% reduction in the number of cavities that would have occurred without fluoride. Some home filtration devices remove fluoride. Bottled water may not contain fluoride.

### WHAT IS THE AMOUNT OF SODIUM IN MY WATER?

GCWW has tested for sodium in treated water as it leaves the treatment plants and has found 36 mg (milligrams) per liter in the Miller water and 28 mg per liter in the Bolton water. There are approximately 4 cups in a liter.

### HOW HARD IS GCWW'S WATER?

Hard water is water that contains more minerals such as calcium and magnesium. Ground water tends to have higher mineral content than surface water because minerals are present in the rocks and aquifer. Water from GCWW's Miller Plant has an average hardness of 132 milligrams per liter or 8 grains per gallon. Water from the Bolton Plant averages 152 milligrams per liter or 9 grains per gallon. Hardness does not affect the safety of water.



**GREATER CINCINNATI**  
**WATER WORKS**

*A Service of The City of Cincinnati*

4747 SPRING GROVE AVENUE  
CINCINNATI, OHIO 45232

## Contact Us

GCWW has a current unconditioned license to operate our water system. For more information about water quality, customer billing, or to request additional copies or submit comments about this report, call (513) 591-7700.

## Visit Us Online

[www.cincinnati-oh.gov/gcww](http://www.cincinnati-oh.gov/gcww)

### • Just for Teachers

GCWW has a Teacher Resource Center full of educational materials and resources.

## Participate in Water Decisions

You may attend any of the following meetings:

### • City of Cincinnati Council

Call (513) 352-3246 or visit [www.cincinnati-oh.gov](http://www.cincinnati-oh.gov)

### • Hamilton to New Baltimore Groundwater Consortium

Call (513) 785-2464

### • OKI Regional Council of Governments Groundwater Committee

Call (513) 621-6300

*City of Cincinnati is an Equal Opportunity/Affirmative Action Employer.*

*This report meets the Ohio and USEPA's National Primary Drinking Water Regulation for Consumer Confidence Reports.*

## For More Information

GCWW Drinking Water:

(513) 591-7700 • [www.cincinnati-oh.gov/gcww](http://www.cincinnati-oh.gov/gcww)

The Food and Drug Administration (FDA):

regulates bottled water.

(888) 723-3366 • [www.fda.gov](http://www.fda.gov)

National Sanitation Foundation (NSF):

for more information about home treatment devices.

(800) 673-8010 • [www.nsf.org](http://www.nsf.org) • [info@nsf.org](mailto:info@nsf.org)

USEPA Safe Drinking Water Hotline: (800) 426-4791

Drinking Water Regulations:

(800) 426-4791 • [water.epa.gov/drink/index.cfm](http://water.epa.gov/drink/index.cfm)